

**Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554**

In the Matter of)	
)	
Communications Marketplace Report)	GN Docket No. 18-231
)	
Inquiry Concerning the Deployment of Advanced)	GN Docket No. 18-238
Telecommunications Capability to All Americans)	
in a Reasonable and Timely Fashion)	
)	

**COMMENTS OF
THE FREE STATE FOUNDATION¹**

I. Introduction and Summary

These comments are submitted in response to the Commission’s Notice of Inquiry regarding Section 706’s requirement that the agency determine and report annually on “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.” These comments demonstrate that available data supports another affirmative deployment determination in the Commission’s upcoming report. Further, these comments support continued use of the 25 Mbps upload/3 Mbps download speeds for defining fixed broadband services and for using LTE coverage with minimum speeds of 5 Mbps upload/1 Mbps download for defining mobile broadband services.

The Commission should not change benchmarks based on aspirations that do not reflect widespread consumer demand and that are not grounded in the text of Section 706. Additionally, these comments show that mobile wireless and wireline services compete for consumers and are

¹ These comments express the views of Randolph May, President of the Free State Foundation, and Seth Cooper, Senior Fellow of the Free State Foundation. FSF Research Fellow Michael Horney contributed to the preparation of the comments. The views expressed do not necessarily represent the views of others associated with the Free State Foundation. The Free State Foundation is a nonpartisan, non-profit free market-oriented think tank.

substitutable. The Commission’s upcoming report should analyze the degree to which those platforms are substitutes for purposes of making the required determination.

Market data available thus far for 2017 supports an affirmative determination that broadband is being reasonably and timely deployed to all Americans. For example, Form 477 data contained in the FCC’s updated Broadband Map indicates that, as of June 30, 2017, 94.22% of the U.S. population had access to fixed broadband Internet services offering speeds of at least 25 Mbps/3 Mbps, and 72.57% of the U.S. population were served by 3 or more fixed broadband providers offering speeds of at least 25 Mbps/3 Mbps. As of that date, 93.86% of the population were served by 3 or more providers offering speeds of 10 Mbps/1 Mbps.

Based on annual reports of thirteen large providers, Free State Foundation Research Fellow Michael Horney estimated total annual broadband capital investment increased 13.95% from the end of 2016 to the end of 2017. Ookla speed tests reveal that average mobile download speeds increased to 27.40 Mbps in July 2018, up from 23.05 Mbps a year earlier. Average fixed broadband speeds increased to 96.91 Mbps in July 2018, up from 70.75 Mbps in 2017. The newly-released Form 477 data for 2017 shows further progress in broadband deployment that exceeds 2016 and 2015 – spurred by the current Commission majority's repeal of anti-investment Title II public utility-style regulation.

For purposes of defining “advanced telecommunications capability,” the Commission should retain its fixed broadband benchmark speeds of 25 Mbps/3 Mbps and its mobile broadband benchmark of LTE service with advertised minimum speeds of 5 Mbps/1 Mbps. The Commission should decline to take up Commissioner Jessica Rosenworcel’s idea of suddenly ramping up its benchmark to 100 Mbps based on her claim that 25 Mbps is “insufficiently audacious.” The text of Section 706 does not direct the report to be “audacious” or to shoot for

the moon. Instead, Section 706 commands a realistic analysis of data regarding deployment of advanced capabilities. Speed benchmarks should reflect capabilities for widely demanded applications. Netflix, Hulu, and Amazon Prime require not more than 10 Mbps for HD streaming or 5 Mbps for standard definition streaming. Sudden arbitrary changes would distract from Section 706's concern with facts about deployment.

Substantial evidence indicates fixed and mobile broadband convergence. For instance: About 60% of global mobile data traffic was offloaded onto fixed networks via Wi-Fi or femtocells in 2016. Comcast and Charter have launched hybrid Wi-Fi/cellular mobile services. DISH Networks has plans for Internet-of-Things (IoT) and 5G services. Ligado Networks has proposed an integrated satellite/terrestrial IoT network.

Mobile data demand continues to rise, particularly for video viewing. A 2017 AOL study found 57% of consumers globally watch videos daily via mobile. Ericsson Mobility expects video to account for 73% of mobile data traffic by 2023. Data from NTIA indicates wireless-only broadband households reached 20% in 2015. And NIH's survey found 54% of U.S. homes were wireless-only for voice services in late 2017.

These data points undermine the *2018 Broadband Progress Report's* conclusion that mobile services are not currently full substitutes for fixed services because they "provide different functionalities" and are "tailored to serve different consumer needs." Correctly, Commissioner Michael O'Rielly disputed that conclusion: "[M]any consumers view the two as substitutes." Consumer demands are not heterogeneous for purposes of analyzing reasonable and timely deployment progress. As Commissioner O'Rielly observed: "[C]onsumers, especially in the less affluent and younger populations, are willing to trade speed for flexibility."

Singular focus on “full substitution” fails to fully take stock of substitution-related data that plainly exists. Rather than fall back on a binary conclusion on full substitution, the Commission’s next report should broadly analyze mobile and fixed competition and the degree to which those technologies are substitutable given varying consumer interests. And even if the Commission determines – as it must – that advanced telecommunications capability is being reasonably and timely deployed to all Americans, the Commission proactively should continue to remove regulatory barriers to spur additional infrastructure investment.

II. Market Data Supports the Conclusion That Broadband Is Being Reasonably and Timely Deployed to All Americans

Although the *2018 Broadband Progress Report* recognized that “[i]n the wake of the *2015 Title II Order*” broadband deployment “slowed dramatically,” unmistakable increases in broadband service availability occurred across platforms. In terms of the U.S. population with access to broadband Internet services at the end of 2016²:

- 92.3% had access to fixed broadband services – that is, fixed services meeting download/upload benchmark speeds of 25Mbps/3Mbps.
- 95.6% had access to fixed broadband services when satellite broadband services are included.
- 99% had access to LTE mobile broadband with download/upload speeds of 5Mbps/1Mbps.
- 87.3% had access to LTE mobile broadband with speeds of 10Mbps/3Mbps.
- 95.4% had access to fixed broadband services and to LTE mobile broadband services with speeds of 5Mbps/1Mbps, including 80.7% in rural areas and 99% in urban areas.
- 85.3% had access to fixed broadband services and to LTE mobile broadband services with speeds of 10Mbps/3Mbps, including 61% in rural areas and 89.8%

² All data points provided below are taken from Inquiry Concerning Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, GN Docket No. 17-199, *2018 Broadband Progress Report* (rel. February 2, 2018).

in urban areas.

Among other positive data points, broadband service adoption at 25 Mbps/3 Mbps grew from under 10% in 2011 to over 50% in 2016, a 40% approximate increase over five years. And smartphone penetration rates nearly doubled from about 42% in 2011 to about 81% in 2016.³

A cursory look at data available thus far for 2017 and 2018 also supports an affirmative determination that broadband is being reasonably and timely deployed to all Americans:

- Form 477 data contained in the FCC's updated Broadband Map indicates that, as of June 30, 2017, 94.22% of the U.S. population has access to fixed broadband Internet services offering speeds of at least 25 Mbps/3 Mbps. As of that date, 72.57% of the population were served by 3 or more fixed broadband providers offering speeds of at least 25 Mbps/3 Mbps. And 93.86% were served by 3 or more providers offering speeds of 10 Mbps/1 Mbps.⁴
- According to USTelecom, wireline, cable, and wireless broadband providers in the U.S., excluding independent CLEC providers and fiber operators, invested between \$72 and \$74 billion in network infrastructure in 2017, compared to \$70.6 billion in 2016. That constitutes an increase of at least \$1.5 billion.⁵
- Using data collected from annual reports of thirteen large broadband providers, Free State Foundation Research Fellow Michael J. Horney estimated total annual broadband capital investment increased 13.95% from the end of 2016 to the end of 2017. According to his estimate, broadband capital investment increased throughout the industry by \$10.6 billion to \$86.6 billion in 2017.⁶
- Ookla speed tests revealed that average mobile download speeds increased to 27.40 Mbps in July 2018, up from 23.05 Mbps a year earlier. Average fixed broadband speeds increased to 96.91 Mbps in July 2018, up from 70.75 Mbps in 2017.⁷
- FSF Research Fellow Michael J. Horney's review of broadband providers' 10-Q forms indicates wireline subscriptions grew from about 97.5 million subscriptions

³ See *2018 Broadband Progress Report*.

⁴ FCC, National Broadband Map: Fixed Broadband Deployment: Number of Fixed Residential Broadband Providers (September 10, 2018), at: https://broadbandmap.fcc.gov/#/area-summary?version=jun2017&type=nation&geoid=0&tech=acfosw&speed=25_3.

⁵ Jonathan Spalter, "Broadband CapEx Investment Looking Up in 2017," *USTelecom Blog* (July 25, 2018), at: <https://www.ustelecom.org/blog/broadband-capex-investment-looking-2017>.

⁶ Michael J. Horney, "Broadband Capital Investment Increased Significantly from 2016 to 2017," *FSF Blog* (May 15, 2018), at: https://freestatefoundation.blogspot.com/2018/05/broadband-capital-investment-increased_15.html.

⁷ Ookla, "Speed Test Global Index" (July 2018), at: <http://www.speedtest.net/global-index/united-states#fixed>.

at the end of 2016 to about 100.1 million subscriptions at the end of 2017. Meanwhile, wireless subscriptions increased from 416.6 million at the end of 2016 to 424.3 million at the end of 2017.

- According to CTIA, year-end 2017 connections exceeded 400 million, smartphones generated an average of 5 GB of data per month in 2017, and smartphones in use increased from 262 million in 2016 to 273 million in 2017.⁸

In preparing its forthcoming report, the Commission will have access to Form 477 data that has not been made publicly available to date. Form 477 data has consistently shown year-over-year increases in deployment of advanced networks and improved speeds. We fully expect data for 2017 will show progress in broadband deployment that exceeds progress made in 2016 and 2015. This is especially so because of the *Restoring Internet Freedom Order*'s repeal of investment inhibiting Title II public utility-like regulation of broadband Internet access services.

III. The Commission Should Maintain Broadband Definition Benchmarks that Reflect Widespread Consumer Demand Rather Than Make Drastic Changes Not Warranted by the Text of Section 706.

For purposes of defining “advanced telecommunications capability,” the Commission’s forthcoming report should retain its fixed broadband benchmark speeds of 25 Mbps download/3 Mbps upload as well as its mobile broadband benchmark of LTE service with advertised minimum speeds of 5 Mbps download/1 Mbps upload.⁹ Also, for purposes of presenting a fuller picture of deployment progress, the forthcoming report should again present deployment figures for 25 Mbps/3 Mbps, 10 Mbps/1 Mbps, and 50 Mbps/5 Mbps speed tiers for fixed services, as well as 5 Mbps/1 Mbps and 10 Mbps/3 Mbps speed tiers for mobile LTE.¹⁰ The prior report’s categories regarding coverage based on availability of fixed services, mobile LTE services, either

⁸ CTIA, “The State of Wireless 2018” (July 2018) (“Annual Wireless Industry Survey”), available at: https://api.ctia.org/wp-content/uploads/2018/07/CTIA_State-of-Wireless-2018_0710.pdf.

⁹ Inquiry Concerning the Deployment of Advanced Telecommunications Capability to All Americans in a Reasonable and Timely Fashion, GN Docket No. 18-238, Public Notice (“Notice”), at ¶¶ 8-9.

¹⁰ Notice, at ¶ 7.

services, and both services are useful for its evaluation and merit retention.¹¹

The Commission should respectfully decline to take up Commissioner Jessica Rosenworcel’s idea of suddenly increasing its broadband benchmark standard from 25 Mbps up to 100 Mbps. Section 706 simply requires the Commission to annually determine and issue a report on “whether advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion.” The statute does not direct the Commission to be “audacious” or to shoot for the moon.¹²

To some, cranking up the Commission’s speed benchmark by 400% might sound like visionary regulatory policy. But the Section 706 process was not intended to be an exercise of the agency’s imagination of what the future would be like if the FCC had unfettered powers and unlimited resources to shape the course of broadband deployment. Instead, Section 706 implies a realistic analysis that takes stock of actual market data regarding deployment of infrastructure and the availability of advanced capabilities that a substantial majority or at least an early majority of consumers subscribe to.

In other words, the Commission’s adoption of broadband speed benchmarks should be based on capabilities needed to support online services and applications that enjoy relatively wide everyday use by consumers. The Commission should not alter its benchmarks to suit data-intensive services or applications that are only minimally available and minimally adopted, like 4K ultra HD streaming video. Indeed, many popular mobile applications, including online video services like Netflix, Hulu, Amazon Prime, and HBO Go – require download speeds of not more than 10 Mbps for HD streaming video or 5 Mbps for standard definition streaming video.

¹¹ Notice, at ¶ 7.

¹² See Notice at 14 (Dissenting Statement of Commissioner Jessica Rosenworcel).

To the extent technological and market innovation call for increased speed benchmarks, increases should be preceded by ample advance notice. In such instances, the Commission should consider measured increases rather than dramatic spikes. Sudden significant changes would be indicators of agency arbitrariness and manipulation and likely would distract from the real-world facts about deployment progress that are the concern of Section 706.

IV. The Commission Should Focus on Whether Some Form of Advanced Telecommunications Capability Is Being Timely and Reasonably Deployed to All Americans

The Commission's Notice requests comment on "whether and to what extent fixed and mobile services of similar functionality are substitutes for each other."¹³ Substantial evidence indicates that many consumers regard fixed and mobile broadband technologies as substitutable or potentially substitutable services. For practical purposes, the Commission's Section 706 inquiry should be directed toward whether some form of advanced telecommunications capability, fixed or mobile, is being reasonably and timely deployed to all Americans.

The Free State Foundation's July 2018 public comments in the Commission's mobile wireless competition proceeding identified several studies and reports regarding consumers' habits and other market data that support the conclusion that fixed and mobile broadband are substitutable or potentially substitutable services.¹⁴ Facts and arguments offered in those comments are also directly relevant in this proceeding. Rather than repeat those facts and arguments in their entirety, a short summary of data points follows.

¹³ Notice, at ¶ 11.

¹⁴ Comments of the Free State Foundation, Implementation of Section 6002(b) of the Omnibus Reconciliation Act of 1993, Annual Report and Analysis of Competitive Market Conditions with Respect to Mobile Wireless, Including Commercial Mobile Services, WT Docket No. 18-203 (July 26, 2018), at 10-14, at:

<https://www.fcc.gov/ecfs/filing/107262486903703>. Also at:
http://www.freestatefoundation.org/images/FSF_Comments_-_Mobile_Wireless_Market_Competition_072618.pdf.

Fixed and mobile broadband networks increasingly reflect technological and service convergence, thereby making those technologies substitutable. About 60% of global mobile data traffic was offloaded onto fixed networks via Wi-Fi or femtocells in 2016.¹⁵ Comcast and Charter Communications launched hybrid Wi-Fi/cellular mobile wireless services in 2017 and 2018. DISH Networks plans to provide Internet-of-Things (IoT) and 5G services using its spectrum licenses in 2018. Ligado Networks' modification applications propose an integrated satellite/terrestrial IoT network.¹⁶ Convergence is further indicated by nationwide geostationary fixed-satellite broadband coverage by Hughes Network Systems and ViaSat,¹⁷ and by fixed wireless broadband services that combine Wi-Fi, cell towers, and backhaul.¹⁸

Mobile data demand continues to rise – particularly for mobile video viewing. An early 2017 study found 57% of consumers globally watch videos each day via mobile.¹⁹ A June 2018 report forecast that global mobile video traffic will account for 73% of all mobile data traffic by 2023.²⁰ Data collected by NTIA shows that wireless-only broadband households doubled between 2013 and 2015, from 10% to 20%.²¹ A June 2018 survey found 43% of U.S. consumer respondents preferred mobile access or had no technology preference while 47% preferred fixed

¹⁵ Cisco Systems, Cisco's Visual Networking Index (VNI) (June 6, 2017), available at: <https://www.cisco.com/c/en/us/solutions/collateral/service-provider/visual-networking-index-vni/mobile-white-paper-c11-520862.html>.

¹⁶ See Reply Comment of the Free State Foundation, Comment Sought on Ligado's Modification Applications, IB Docket No. 11-109, SAT-AMD-20180531-00044, SAT-AMD-20180531-00045 (July 19, 2018), at: <https://www.fcc.gov/ecfs/filing/10719575514007>.

¹⁷ See Seth L. Cooper, "Satellite Broadband Services Will Enhance Competition and Reach New Consumers," *FSF Blog* (March 14, 2018), at: <https://freestatefoundation.blogspot.com/2018/03/satellite-broadband-services-will.html>.

¹⁸ Michael J. Horney, "Fixed Wireless Could Help Reach More Rural Consumers," *FSF Blog* (November 24, 2017), at: <https://freestatefoundation.blogspot.com/2017/11/fixed-wireless-broadband-could-help.html>.

¹⁹ AOL, "How Consumers are Engaging with Mobile Video Around the World" (February 17, 2017), available at: <https://advertising.aol.com/mobile-video-global>.

²⁰ Ericsson Mobility Report (June 2018), at 13, available at: <https://www.ericsson.com/assets/local/mobility-report/documents/2018/ericsson-mobility-report-june-2018.pdf>.

²¹ Giulia McHenry, Chief Economist, Office of Policy Analysis and Development, NTIA, "Evolving Technologies Change the Nature of Internet Use" (April 19, 2016), available at: <https://www.ntia.doc.gov/blog/2016/evolving-technologies-change-nature-internet-use>.

broadband preference.²² The National Health Interview survey found nearly 54% of American homes were wireless-only for voice services during the last half of 2017.²³

These data points indicating that fixed and mobile services are competing and substitutable or potentially substitutable services undermine the *2018 Broadband Progress Report*'s rejection of the idea that mobile services are currently full substitutes for fixed services.²⁴ The *2018 Report* maintained that fixed and mobile broadband services are not “full substitutes” because they “provide different functionalities” and are “tailored to serve different consumer needs.” Correctly, Commissioner Michael O’Rielly disputed that conclusion: “Given the choice between gigabit speed wireline broadband and slower, data-capped wireless service, consumers that I have met with and providers deploying service in neighborhoods will make clear that the wireless service is preferable – by far.”²⁵ Further: “[M]any consumers view the two as substitutes.”²⁶

Almost by definition, a singular focus on “full substitution” inevitably will result in a negative conclusion regarding the substitutability of fixed and mobile platforms. Such a narrow focus fails to fully take stock of the substitution-related data that plainly exists, including the perception among many consumers that mobile and fixed broadband are substitutes. Indeed, consumer demands are not heterogeneous, and many are willing to make trade-offs based on

²² Internet Innovation Alliance (IIA), “Evolving Preferences: Consumer Preferences Tilting Toward Mobile Broadband” (July 17, 2018), at 4, available at: https://internetinnovation.org/wp-content/uploads/IIA_ConsumerPreferences_Whitepaper.pdf.

²³ Stephen J. Blumberg and Julian V. Lake, “Wireless Substitution: Early Release of Estimates From the National Health Interview Survey, July-December 2017,” Division of Health Interview Statistics, National Center for Health Statistics (released May, 2018), available at <https://www.cdc.gov/nchs/data/nhis/earlyrelease/wireless201806.pdf>.

²⁴ *2018 Broadband Progress Report*, at ¶ 18.

²⁵ *2018 Broadband Progress Report*, (Statement of Commissioner Michael O’Rielly) at 86.

²⁶ *2018 Broadband Progress Report*, (Statement of Commissioner Michael O’Rielly) at 86.

different platform capabilities. As Commissioner O’Rielly observed: “[C]onsumers, especially in the less affluent and younger populations, are willing to trade speed for flexibility.”²⁷

For its next report, the Commission should consider a wide-ranging analysis of the degree or extent to which those competing technologies are substitutable. Rather than settle for a binary conclusion regarding full substitution, the Commission should take a more incisive look at the competitive effects of mobile substitutability and varying consumer habits.

V. The Commission Must Remove Regulatory Barriers to Broadband Infrastructure Investment, Not Impose New Barriers in Competitive Markets

Even if the Commission determines – as it should in this inquiry – that advanced telecommunications capability is being reasonably and timely deployed to all Americans, it should be a Commission goal to proactively identify and remove such regulatory barriers to broadband infrastructure investment. As a general matter, removal of unnecessary and costly legacy rules allows broadband ISPs to direct more investment resources toward next-generation broadband facility upgrades and deployments. The Commission should pursue the following reform proposals that are in keeping with Section 706:

- Reinvigorate its authority under Sections 10 and 11 to eliminate regulations that are no longer necessary due to technological advances, competitive market conditions, and consumer choice. The Commission should adopt rebuttable presumptions of market competitiveness as procedural rules for implementing Sections 10 and 11, consistent the deregulatory orientation of those sections.²⁸

²⁷ 2018 Broadband Progress Report, (Statement of Commissioner Michael O’Rielly) at 86.

²⁸ See Randolph J. May and Seth L. Cooper, “A Proposal for Improving the FCC’s Regulatory Reviews,” *Perspectives from FSF Scholars*, Vol. 12, No. 1 (January 3, 2017), available at: http://www.freestatefoundation.org/images/A_Proposal_for_Improving_the_FCC_s_Regulatory_Reviews_010317.pdf; Reply Comments of the Free State Foundation, 2016 Biennial Review of Telecommunications Regulations, CG Docket No. 16-124, EB Docket No. 16-120, IB Docket No. 16-131, ET Docket No. 16-127, PS Docket No. 16-128, WT Docket No. 16-138, WC Docket No. 16-132 (January 3, 2017), available at: https://ecfsapi.fcc.gov/file/10103299930129/FSF%20Reply%20Comments%20Sec%2011%20-%20Final_2.pdf; and Randolph J. May and Seth L. Cooper, “A Proposal for Improving the FCC’s Forbearance Process,” *Perspectives from FSF Scholars*, Vol. 12, No.4 (January 17, 2017), available at: http://www.freestatefoundation.org/images/A_Proposal_for_Improving_the_FCC_s_Forbearance_Process_011717.pdf.

- Take further steps to remove local government barriers to small cell and other wireless infrastructure deployment to facilitate a vibrant 5G mobile broadband future. The Commission should act with dispatch in its proceedings involving small cells and other wireless infrastructure siting.²⁹
- Once NTIA has completed its evaluation, the Commission should promptly make a final decision on Ligado Networks' modified application to deploy a hybrid terrestrial-satellite network in the L-Band that will provide "Internet of Things" services and spur 5G deployment.³⁰
- Make the identification and clearing of spectrum for commercial uses an unceasing policy priority requiring prompt action.

VI. Conclusion

For the foregoing reasons, the Commission should find that advanced telecommunications capability is being deployed to all Americans in a reasonable and timely fashion and act in accordance with the views expressed herein.

Respectfully submitted,

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²⁹ See Reply Comments of the Free State Foundation, Streamlining Deployment of Small Cell Infrastructure by Improving Wireless Facilities Siting Policies; Mobilitie, LLC Petition for Declarator Ruling, WT Docket No. 16-421 (April 7, 2017), available at: <https://ecfsapi.fcc.gov/file/1040730794013/FSF%20ReplyCmt%20SmallCell%20040717.pdf>; Comments of the Free State Foundation, Accelerating Wireless Broadband Deployment by Removing Barriers to Infrastructure Investment, WT Docket No. 17-79 (June 15, 2017), available at: <https://ecfsapi.fcc.gov/file/1061589503265/FSF%20Comments%20Re%20Accelerating%20Wireless%20Broadband%20Deployment%20by%20Removing%20Barriers%20to%20Infrastructure%20Investment%20061517.pdf>.

³⁰ See Reply Comment of the Free State Foundation, Comment Sought on Ligado's Modification Applications, IB Docket No. 11-109, SAT-AMD-20180531-00044, SAT-AMD-20180531-00045 (July 19, 2018).